

单 P 沟道 MOSFET

ELM59575SA-S

<http://www.elm-tech.com>

■概要

ELM59575SA-S 是 P 沟道低输入电容,低工作电压,低导通电阻的大电流 MOSFET。

■特点

- $V_{ds} = -60V$
- $I_d = -18A$
- $R_{ds(on)} < 68m\Omega$ ($V_{gs} = -10V$)
- $R_{ds(on)} < 78m\Omega$ ($V_{gs} = -4.5V$)

■绝对最大额定值

如没有特别注明时, $T_a = 25^\circ C$

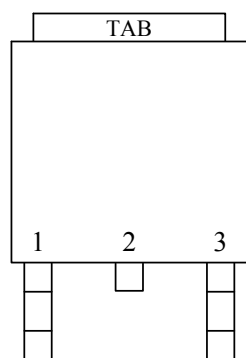
项目	记号	规格范围	单位	
漏极 - 源极电压	V_{ds}	-60	V	
栅极 - 源极电压	V_{gs}	± 20	V	
漏极电流 (定常)	I_d	$T_a = 25^\circ C$	-18	A
		$T_a = 70^\circ C$	-12	
漏极电流 (脉冲)	I_{dm}	-50	A	
崩溃电流	I_{as}	-12	A	
崩溃能量	E_{as}	23	mJ	
容许功耗	P_d	$T_c = 25^\circ C$	40	W
		$T_c = 70^\circ C$	15	
结合部温度及保存温度范围	T_j, T_{stg}	-55 ~ 150	$^\circ C$	

■热特性

项目	记号	典型值	最大值	单位
最大结合部 - 环境热阻	$R_{\theta ja}$		62.5	$^\circ C/W$

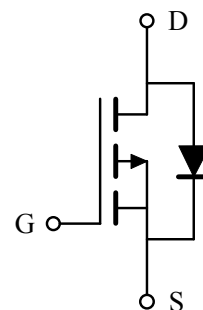
■引脚配置图

TO-252-3(俯视图)



引脚编号	引脚名称
1	GATE
2	DRAIN
3	SOURCE

■电路图



单 P 沟道 MOSFET

ELM59575SA-S

<http://www.elm-tech.com>

■电特性

如没有特别注明时, Ta=25℃

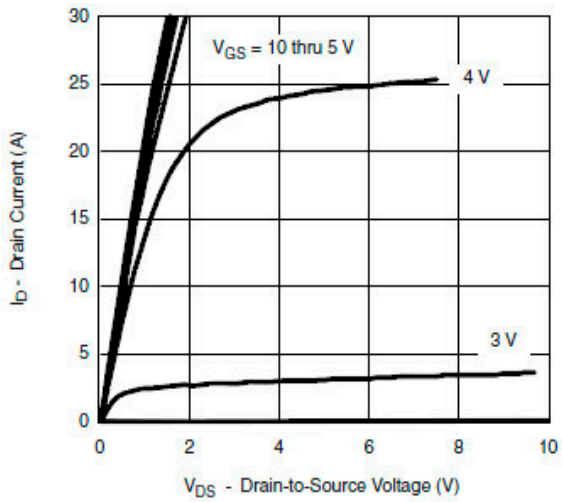
项目	记号	条件	最小值	典型值	最大值	单位
静态特性						
漏极 - 源极击穿电压	BVdss	Vgs=0V, Id=-250μA	-60			V
栅极接地时漏极电流	Idss	Vds=-48V, Vgs=0V			-1	μA
		Vds=-48V, Vgs=0V, Ta=85℃			-20	
栅极漏电流	Igss	Vds=0V, Vgs=±20V			±100	nA
栅极阈值电压	Vgs(th)	Vds=Vgs, Id=-250μA	-1.0		-2.5	V
导通时漏极电流	Id(on)	Vgs=-10V, Vds=-5V	-20			A
漏极 - 源极导通电阻	Rds(on)	Vgs=-10V, Id=-18A		55	68	mΩ
		Vgs=-4.5V, Id=-12A		65	78	
正向跨导	Gfs	Vds=-15V, Id=-3.2A		12		S
二极管正向压降	Vsd	Is=-3A, Vgs=0V		-0.8	-1.3	V
寄生二极管最大连续电流	Is				-10	A
动态特性						
输入电容	Ciss	Vgs=0V, Vds=-25V, f=1MHz		1200	2000	pF
输出电容	Coss			140		pF
反馈电容	Crss			90		pF
开关特性						
总栅极电荷	Qg	Vgs=-10V, Vds=-30V Id=-10A		25	40	nC
栅极 - 源极电荷	Qgs			5		nC
栅极 - 漏极电荷	Qgd			8		nC
导通延迟时间	td(on)	Vgs=-10V, Vds=-30V Id=-18A, RL=3Ω, Rgen=2.5Ω		10	20	ns
导通上升时间	tr			10	20	ns
关闭延迟时间	td(off)			45	80	ns
关闭下降时间	tf			25	40	ns

单 P 沟道 MOSFET

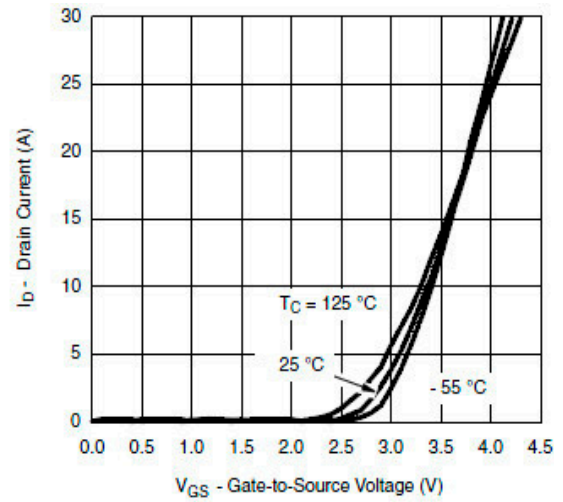
ELM59575SA-S

<http://www.elm-tech.com>

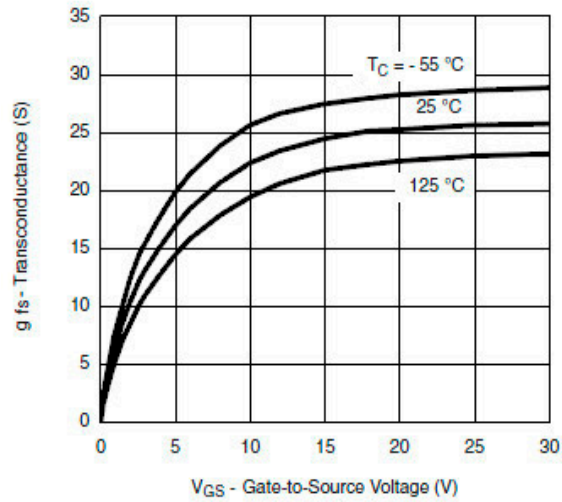
■ 标准特性和热特性曲线



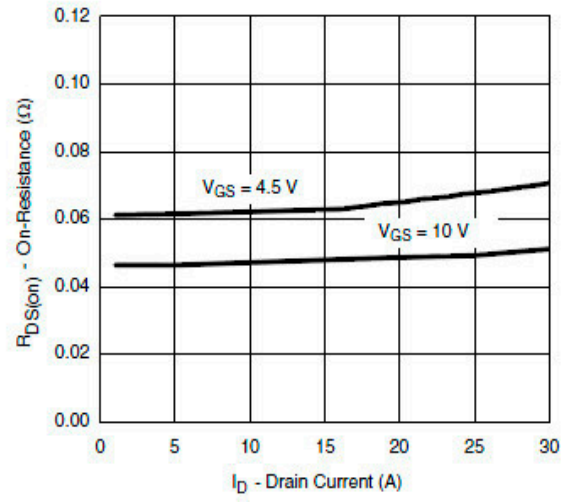
Output Characteristics



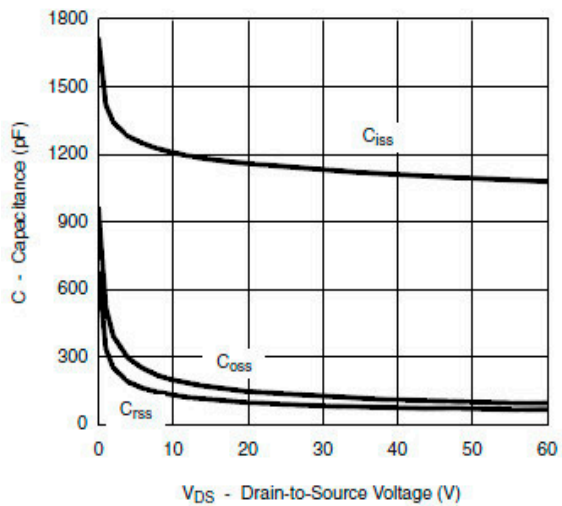
Transfer Characteristics



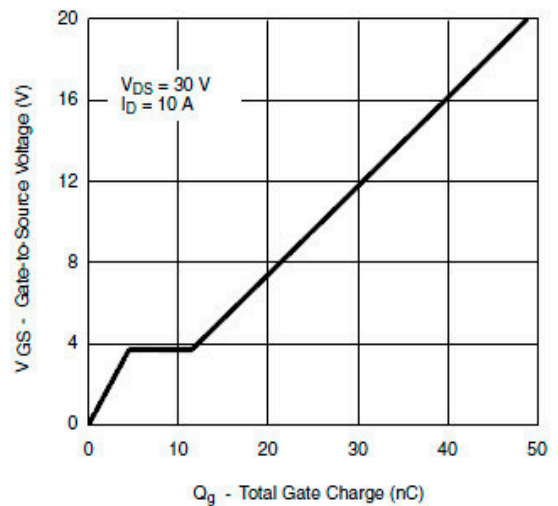
Transconductance



On-Resistance vs. Drain Current



Capacitance

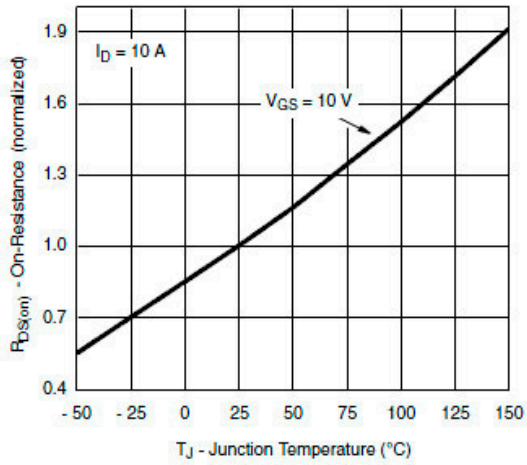


Gate Charge

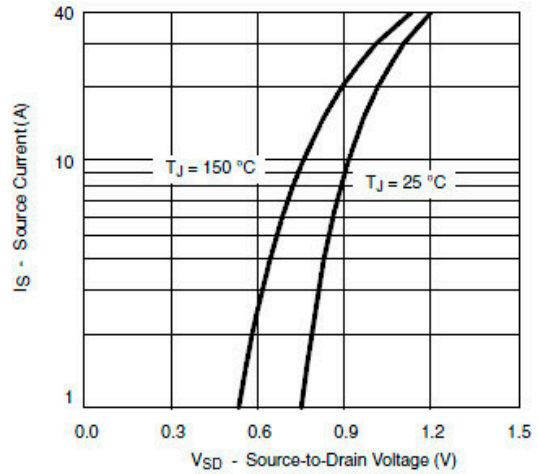
单 P 沟道 MOSFET

ELM59575SA-S

<http://www.elm-tech.com>

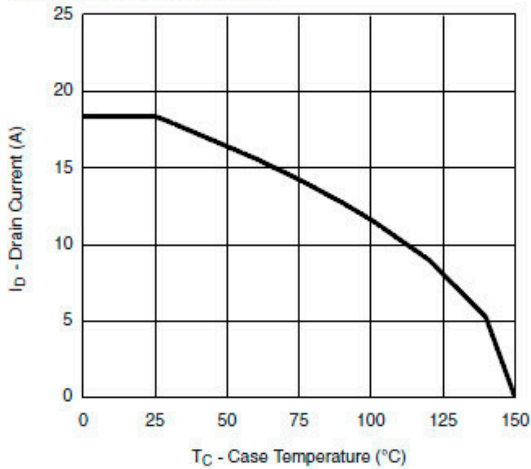


On-Resistance vs. Junction Temperature

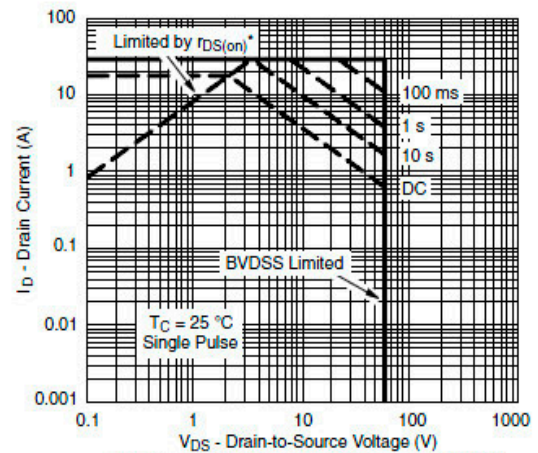


Source-Drain Diode Forward Voltage

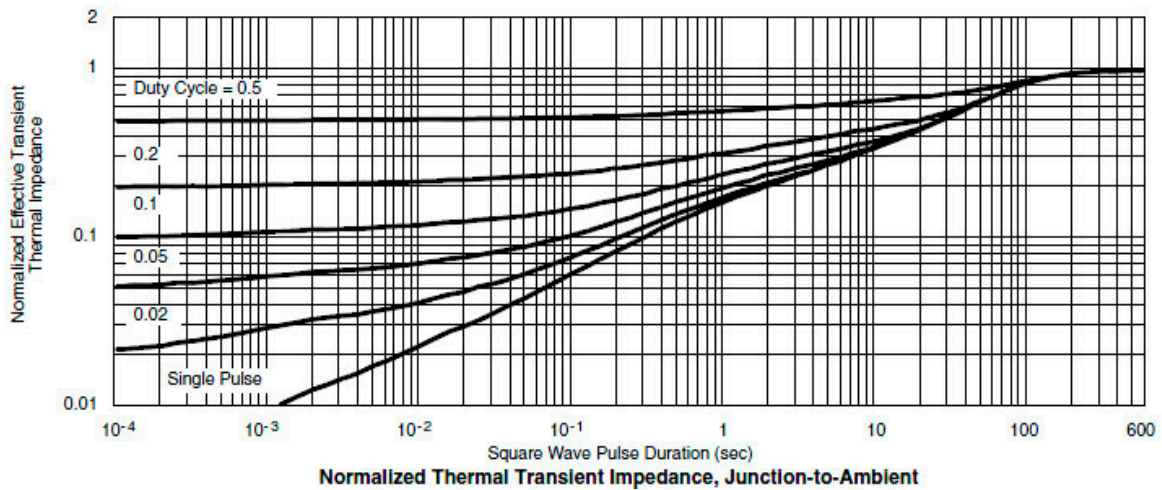
THERMAL RATINGS



Maximum Drain Current vs. Case Temperature



Safe Operating Area



Normalized Thermal Transient Impedance, Junction-to-Ambient

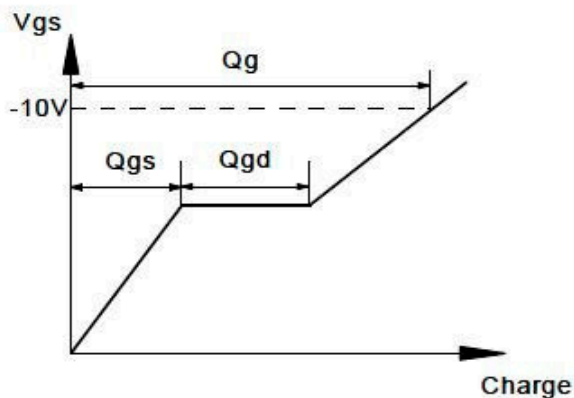
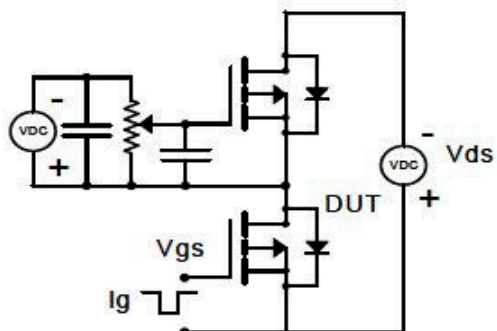
单 P 沟道 MOSFET

ELM59575SA-S

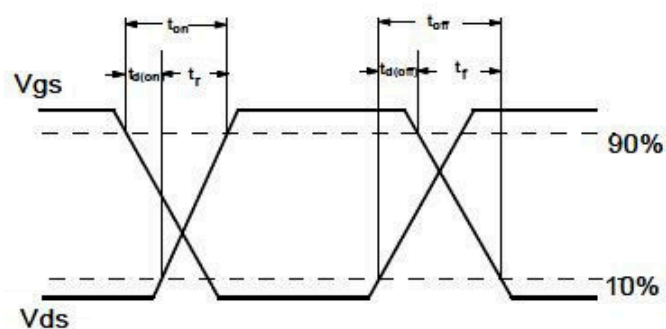
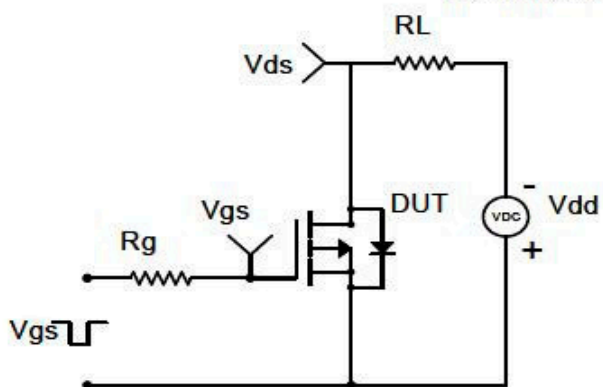
<http://www.elm-tech.com>

■测试电路和波形

Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms



Diode Recovery Test Circuit & Waveforms

